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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,395	09/18/2003	Torrey M. Bievenour	VQL-P-P6	4441

44702 7590 04/12/2006

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EXAMINER	
LAVARIAS, ARNEL C	

ART UNIT	PAPER NUMBER
2872	

DATE MAILED: 04/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H·A

Office Action Summary	Application No.	Applicant(s)	
	10/664,395	BIEVENOUR ET AL.	
	Examiner	Art Unit	
	Arnel C. Lavarias	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-24 and 26-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *7,19-22,32 and 35-39* is/are allowed.

6)☒ Claim(s) *1,2,4-6,8,11,12,14-18,23,24,26-28,31,40 and 41* is/are rejected.

7)☒ Claim(s) *9,10,13,29,30,33 and 34* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/26/06 has been entered.

Response to Amendment

2. The amendments to Claims 1, 17, 23, 26-27, 32, 40-41 in the submission dated 1/26/06 are acknowledged and accepted. In view of these amendments, the rejection of Claim 40 in Section 10 of the Office Action dated 10/28/05 is respectfully withdrawn.

3. The cancellation of Claim 25 in the submission dated 1/26/06 is acknowledged and accepted.

Response to Arguments

4. The Applicants argue that, with respect to newly amended Claims 1, 23, 25-27, as well as Claims 2, 4-6, 8, 11-12, 14-16, 24, 28, 31 which depend on Claims 1, 23, 25-27, Shanks fails to teach or reasonably suggest an optically active liquid of randomly oriented and positioned molecules. After reviewing the Shanks references, the Examiner

agrees, and respectfully withdraws the rejections in Sections 12, 15-18 of the Office Action dated 10/28/05.

5. The Applicants similarly argue that, with respect to newly amended Claim 17, as well as Claim 18 which depends on Claim 17, Shanks fails to teach or reasonably suggest an optically active liquid of randomly oriented and positioned molecules. After reviewing the Shanks references, the Examiner agrees, and respectfully withdraws the rejections in Section 13 of the Office Action dated 10/28/05.

6. The Applicants argue that, with respect to newly amended Claim 41, the combined teachings of Shanks and Carmichael et al. fail to teach or reasonably suggest an optically active liquid of randomly oriented and positioned molecules. After reviewing the Shanks and Carmichael et al. references, the Examiner agrees, and respectfully withdraws the rejections in Section 19 of the Office Action dated 10/28/05.

7. Claims 1-2, 4-6, 8, 11-12, 14-18, 23-24, 26-28, 31, 40-41 are now rejected as follows.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claim 12 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the

relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 12 recites the limitation that the optical activity of the optical active device (which comprises an optically active liquid of randomly oriented and positioned molecules) is electrically controlled. However, other than liquid crystal materials, the Examiner is unaware of any other liquid materials, and particularly any other liquid materials of randomly oriented and positioned molecules) that exhibit an electrically controlled optical activity. In addition, Applicants have not disclosed any such exemplary materials. Page 9 of Applicants' disclosure specifically discloses that an alternative to the optically active liquid substance is a crystal (i.e. a solid) whose optical activity is dependent on an applied electric field (See Page 9, lines 1-6 of Applicants' disclosure).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 1-2, 5-6, 11, 23, 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiss (WO 02/082169 A1), of record, in view of Adams et al. (U.S. Patent No. 3915553).

Kiss discloses an optically active color filter (See for example Figures 1-6), comprising a rotatable, linear polarizer (See for example 4 in Figure 2, 6; Page 11, line 15-Page 12, line 2; Page 14, lines 9-22) for polarizing light from a light source (See for example Figures 1-2; Page 8, lines 18-30); an optically active device for rotating the polarized light from the polarizer, the optically active device comprising an optically active material (See for example 1 in Figure 2; Page 2, lines 3-28; Page 9, lines 12-25); and an adjustable polarizer (See for example 2 in Figures 1-2, 6; Page 11, line 15-Page 12, line 9; Page 14, lines 9-22) for selecting a desired color from the rotated polarized light from the optically active device. Shanks additionally discloses that the linear polarizer may be a fixed-position linear polarizer (See 4 in Figure 2); the adjustable polarizer may be a first rotatable polarizer (See for example 2 in Figures 1-3; Page 11, line 15-Page 12, line 9; Page 14, lines 9-22); at least one element thereof is removable (See for example 5, 1, 2, in Figure 6; Page 14); and one or both polarizers may be rotated through 180 degrees to generally provide a continually varying series of colors in the output (See for example Figures 2, 6; Page 12, lines 3-9; Page 14, lines 9-22; wherein the linear polarizer and the adjustable polarizer inherently may be rotated about an angular rotation range of 0 to 360 degrees, and 180 degrees is within this angular rotation range). Shanks further discloses a method for producing a colored light (See for example Figures 1-6), the method comprising polarizing light (See for example 4 in Figure 2, 6; Page 11, line 15-Page 12, line 2; Page 14, lines 9-22) from a light source (See for example Figures 1-2; Page 8, lines 18-30); rotating the polarized light through an optically active substance (See for example 1 in Figure 2; Page 2, lines 3-28; Page 9, lines 12-25); and

selecting a desired color from the rotated polarized light by passing the rotated polarized through an adjustable polarizer (See for example 2 in Figures 1-2, 6; Page 11, line 15-Page 12, line 9; Page 14, lines 9-22). Kiss does not explicitly disclose the optical active material being a liquid of randomly oriented and positioned molecules, such as sucrose solution. However, Kiss does disclose various well known materials that exhibit optical activity, including sugar solutions and turpentine (See Page 2, lines 3-28), and that the optically active materials may preferably, but not necessarily, be of quartz, rutile, zirconium, mica, etc. (See Page 7, lines 4-13). In addition, Adams et al. teaches a conventional color filter system (See for example Figures 1, 4) which utilizes optically active materials suitable to rotate the incident light polarization state, such as single crystal solids, liquids, and preferably but not necessarily liquid crystal materials (See Abstract; col. 2, lines 49-64). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the optical active material be a liquid of randomly oriented and positioned molecules, such as sucrose solution, as taught by both Kiss and Adams et al., in the device and method of Kiss, to take advantage of the widespread availability and inexpensive cost of such liquid materials like sucrose solution.

12. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiss in view of Adams et al. as applied to Claim 1 above, and further in view of Reznik et al. (U.S. Patent No. 5442468), of record.

Kiss in view of Adams et al. discloses the invention as set forth above in Claim 1, except for the adjustable polarizer further comprising an electrically controlled polarizing assembly having a voltage-controlled liquid crystal panel for selecting a desired color from the rotated polarized light from the optically active device. However, Reznik et al. teaches an optical active color filter (See for example Figures 3-4) comprising a first linear polarizer for polarizing light from the light source (See 400, 402, 404 in Figure 4); an optical active device for rotating the polarized light from the linear polarizer, the optically active device comprising an optically active liquid (See 406 in Figure 4; it is noted that the liquid crystal used in the liquid crystal cell inherently is optically active); and an electrically controlled polarizing assembly for selecting a desired color from the rotated polarized light from the optically active device (See 407, 409, 410 in Figure 4); the polarizing assembly comprising a voltage-controlled liquid crystal panel (See 409 in Figure 4) and a second linear polarizer (See 407, 410 in Figure 4). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the adjustable polarizer further comprise an electrically controlled polarizing assembly having a voltage-controlled liquid crystal panel for selecting a desired color from the rotated polarized light from the optically active device, as taught by Reznik et al., in the device of Kiss in view of Adams et al., for the purpose of providing specific color discrimination based on applied voltage to the liquid crystal panel.

13. Claims 4, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiss in view of Adams et al.

Kiss in view of Adams et al. discloses the invention as set forth above in Claims 1, 27, except for the optically active liquid comprising corn syrup. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the optically active liquid comprise corn syrup, since it has been held to be within the ordinary skill of worker in the art to select a known material on the basis of its suitability of the intended use. One would have been motivated to have the optically active liquid comprise corn syrup, since such material is well known, optically active material that is widely available and inexpensive, and additionally do not require an external voltage or current to operate. *Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945).*

14. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kiss in view of Adams et al. as applied to Claims 1, 6 above, and further in view of Reznik et al.

Kiss in view of Adams et al. discloses the invention as set forth above in Claims 1 and 6, except for the color filter including a second rotatable polarizer disposed between the light source and linear polarizer. However, Reznik et al. teaches an apparatus for producing color effects (See for example Figures 1-4), wherein additional polarizers are utilized to control the color and brightness of the output light, and that such polarizers are similarly rotatable (See 402, 407, 410 in Figure 4; col. 2, line 57-col. 3, line 38; col. 5, line 35-col. 6, line 16). The polarizers are placed such that two polarizers may be located prior to an optically active device (See for example 402, 407 in Figure 4). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the color filter include a second rotatable polarizer disposed between

the light source and linear polarizer, as taught by Reznik et al., in the device of Kiss in view of Adams et al., to provide adjustment of color over the entire visible spectrum range available to the optically active device.

15. Claims 14-16, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiss in view of Adams et al. as applied to Claims 1, 23 above, and further in view of Carmichael et al. (WO01/50187 A1), of record.

Kiss in view of Adams et al. discloses the invention as set forth above in Claims 1, 23, except for the color filter being controlled by an electronic wireless remote control device. However, Carmichael et al. teaches a tunable liquid crystal optical filter for producing various color effects (See for example Figure 3-8, 18-19), wherein the various liquid crystal panels in the color filter are controlled by a receiver detecting signals from a remote transmitter (See 28, 1 in Figures 18-19; Page 15, lines 11-37). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the color filter of Kiss in view of Adams et al., be controlled by an electronic wireless remote control device, as taught by Carmichael et al., to reduce the size of the filter and system to which the filter is attached, thus allowing the apparatus to be self-contained.

16. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kiss in view of Adams et al. as applied to Claim 1 above, and further in view of Pedrotti et al. (F. L. Pedrotti, L. S. Pedrotti, 'Introduction to Optics', Prentice Hall, New Jersey, 1993, pp. 298-319).

Kiss in view of Adams et al. discloses the invention as set forth above in Claim 1, except for the device being calibrated by projecting a monochromatic light into the linear polarizer, adjusting the adjustable polarizer to a point of greatest extinction, and setting the point of greatest extinction as a baseline. However, Pedrotti et al. teaches that via the use of Malus' law (See equation 15-1 on Page 299 of Pedrotti et al.), the actual measurement of the optical activity of the optically active liquid in the optically active device may be determined (See Section 15-6 in Pedrotti et al.) by sending light into the linear polarizer, passing the light emerging from the linear polarizer to the optically active liquid, then passing the emerging from the optically active liquid into an adjustable polarizer (See Figure 15-17 in Pedrotti et al.). By rotating the adjustable polarizer to extinguish any light passing through the adjustable polarizer, the optical activity of the optically active liquid may be determined. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made for the device of Kiss in view of Adams et al., to be calibrated by projecting a monochromatic light into the linear polarizer, adjusting the adjustable polarizer to a point of greatest extinction, and setting the point of greatest extinction as a baseline, as taught by Pedrotti et al., for the purpose of characterizing the optically active liquid, such that the information may be utilized to optimize adjustments (i.e. adjust the rotation) of the linear and adjustable polarizer during use of the device.

17. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kiss in view of Adams et al. as applied to Claim 1 above, and further in view of Carmichael et al.

Kiss in view of Adams et al. discloses the invention as set forth above in Claim 1, except for the optical active color filter mounted inside an image projector. However, Carmichael et al. teaches a tunable liquid crystal optical filter for producing various color effects (See for example Figure 3-8, 18-19), wherein such optical filters may be utilized with image projection systems, such as overhead projectors and luminaries (See Figures 7-8; Pages 12-14). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the optical active color filter of Kiss in view of Adams et al., be mounted inside an image projector, as taught by Carmichael et al., for the purpose of providing color and enhancing brightness at low cost and little added manufacturing complexity.

Allowable Subject Matter

18. Claims 7, 19-22, 32, 35-39 are allowed.

19. Claims 9-10, 13, 29-30, 33-34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

20. The following is a statement of reasons for the indication of allowable subject matter:

Claim 19-22, 35-39 is allowable over the cited art of record for at least the reason as previously set forth in Section 18 of the Office Action dated 2/15/05.

Claim 7 is allowable over the cited art of record for at least the reason as previously set forth in Section 22 of the Office Action dated 10/28/05.

Claim 32 is allowable over the cited art of record for at least the reason that the cited art of record fails to teach an optically active color filter, as generally set forth in Claim 32, the color filter including, in combination with the features recited in Claim 32, the color from the first rotatable polarizer having only one peak wavelength in the visible light spectrum and further, wherein the peak wavelength stays in the visible light spectrum for at least 90 degrees of rotation of the first rotatable polarizer.

Claims 9, 33-34 are allowable over the cited art of record for at least the reason as previously set forth in Section 22 of the Office Action dated 10/28/05.

Claim 10 is allowable over the cited art of record for at least the reason as previously set forth in Section 22 of the Office Action dated 10/28/05.

Claim 13 is allowable over the cited art of record for at least the reason as previously set forth in Section 22 of the Office Action dated 10/28/05.

Claim 29 is allowable over the cited art of record for at least the reason as previously set forth in Section 22 of the Office Action dated 10/28/05.

Claim 30 is allowable over the cited art of record for at least the reason as previously set forth in Section 22 of the Office Action dated 10/28/05.

Conclusion

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 9:30 AM - 6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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4/6/06